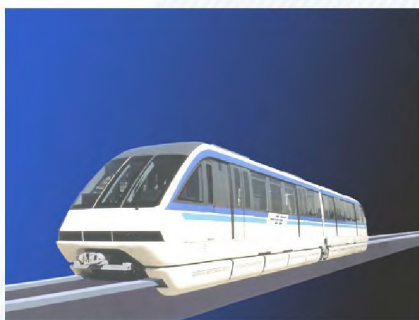




FTA Low Speed Magnetic Levitation Program

*Fourth Plenary Meeting
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Statutory Basis of FTA Low Speed Maglev Program

- TEA-21
- Development of Low Speed Magnetic Levitation Technologies for Public Transportation Purposes in Urban Areas
- Development of Low Speed Superconductivity Magnetic Levitation Technologies
- Projects must demonstrate:
 - Energy efficiency
 - Congestion mitigation
 - Safety benefits



Funding

- TEA-21 provided \$5M annually for low speed maglev (FY98 – FY03)
- TEA-21 provided \$5M total for low speed superconductivity maglev
- Additional \$8.8M from TEA-21 extensions (FY04 - FY05)
- Additional earmarking in FY 04, FY 05 for demonstration planning of maglev system at California University of Pennsylvania



FTA Low Speed Maglev Program

- Published in the Federal Register, January 29, 1999
- Program Elements
 - Evaluation of system concepts
 - Prototype system development
 - System integration and deployment plans
- Selected concepts must have R & D purpose to overcome critical technological gaps
- Emphasis is on deployable technologies with participation by end user



Objectives

- Develop a base of knowledge on low speed urban maglev technology
- Enhance maglev subsystems (levitation, propulsion, power supply, communication/control, guideway, vehicle)
- Integration of maglev system design (fleet operations, safety, communication and control systems, subsystems integration)
- Evaluate and optimize a full scale demonstration (cost, safety, reliability, maintenance, energy efficiency)
- Demonstrate low speed urban maglev technologies



Required Performance Improvements

- Larger levitation (Mechanical) gaps ($\geq 10\text{mm}$)
- Higher peak speeds ($\geq 62\text{ mph}$)
- Steeper gradient negotiation ($\geq 7^\circ$)
- Tighter curve negotiation (62' radius)



Other Desirable Attributes

- Powerful propulsion motors
 - Improved Linear Induction Motor
 - Linear Synchronous Motor
- Low cost guideways
- Alternate systems other than electromagnets to generate magnetic fields
 - Permanent magnets
 - Superconducting magnets



Competitively Selected Participants

- Maglev Urban Systems Associates, Baltimore, MD
- General Atomics, San Diego, CA
- MagneMotion, Acton, MA
- Colorado Dept. of Transportation, Denver, CO
- Maglev 2000, Titusville, FL



Accomplishments

- General Atomics
 - Laboratory demonstration of levitation
 - 120m long test track in San Diego
 - Built one vehicle chassis with levitation magnets
 - Limited demo of propulsion and levitation
- Colorado Dept. of Transportation
 - Developed cost-effective guideway concept
 - Advanced linear induction motor concept
- MagneMotion
 - 1/7 scale successful laboratory demo of levitation



Accomplishments

- Maglev 2000
 - Work on development of superconducting magnets
- Maglev Urban System Associates
 - Studied the viability of Japanese system for use in the U.S.
- Sandia National Laboratories
 - Developed segmented rail phased induction motor for greater efficiency



Future Proposed Activities

- Close-out existing projects
- Complete testing at General Atomics
- Develop lessons-learned
- FTA selection of possible options for future
- Potential partnering



Potential Cooperation between U.S. and Korea

- Explore potential for coordination/collaboration in future research, development, and possible demonstration of low speed Maglev technologies in U.S.
- Share information on Korean Maglev technology
- Explore potential partnering between ROTEM, KIMM, and U.S. interests
- If partnering acceptable, initiate cooperative agreements and/or contracts that enable incorporation of Korean Maglev technology in FTA's Low Speed Maglev Program of activities



Expected Resource Approach

- Correspondence, site visits, meetings, and teleconferences
- Information exchange to follow positive outcome of correspondence, site visits, meetings, and teleconferences



Expected Outcome

- February 2006– Establish contact with MOCT, ROTEM, and KIMM
- March 2006 – Establish parameters for sharing basic information and technology development
- April 2006 – Meetings in Washington, D.C. and/or Seoul and Daejeon to continue to explore information exchange and possible partnering opportunities
- May 2006 – Establish outline of potential partnering between ROTEM/KIMM and U.S. concerns
- August 2006 – Execution of cooperative agreements and/or contracts between ROTEM/KIMM and U.S. concerns